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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KAO, CHIH CHENG G

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/680,342

Applicant(s)

LEONARD ET AL.

Examiner

Chih-Cheng Glen Kao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-41 is/are rejected.
- 7) ☒ Claim(s) 17,23,24,30 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 01 October 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 17 is objected to because of the following informalities: Claim 17 recites the limitation "the quality IC package" in lines 14. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by deleting "quality". For purposes of examination, the claim has been treated as such. Appropriate correction is required.
2. Claim 23 is objected to because of the following informalities: Claim 23 recites the limitation "the coplanarity" in lines 1. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by inserting - -value- - after "coplanarity. For purposes of examination, the claim has been treated as such. Appropriate correction is required.
3. Claim 24 is objected to because of the following informalities: Claim 24 recites the limitation "the coplanarity" in lines 1. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by inserting - -value- - after "coplanarity. For purposes of examination, the claim has been treated as such. Appropriate correction is required.
4. Claim 24 is objected to because of the following informalities: Claim 24 recites the limitation "the best fit plane" in line 2. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by deleting "the" and insert --a--. For purposes of examination, the claim has been treated as such. Appropriate correction is required.

5. Claim 30 is objected to because of the following informalities: Claim 30 recites the limitation "the quality IC package" in lines 18. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by deleting "quality". For purposes of examination, the claim has been treated as such. Appropriate correction is required.

6. Claim 36 is objected to because of the following informalities: Claim 36 recites the limitation "the quality IC package" in lines 17. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by deleting "quality". For purposes of examination, the claim has been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17-22, 25, 26, 28, 30-32, 34, and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. (US Patent 5652658).

Jackson et al. discloses a method of evaluating comprising acquiring a two dimensional image with an address and pixel intensity and a three dimensional image with an address and altitude (col. 5, lines 35-39) and rejecting an IC package based on altitude (col. 6, lines 12-15),

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coplanarity (col. 3, lines 15-22), and shape of a sphere (col. 4, lines 5-10) with a template or fixture (col. 5, lines 58-60) and gray scale images (col. 5, lines 63-67).

However, Jackson et al. does not disclose processing the two dimensional image to identify three dimensional features, and processing the three dimensional image at those features to determined the altitude of those features in this particular embodiment.

Jackson et al. teaches processing the two dimensional image to identify three dimensional features, and processing the three dimensional image at those features to determined the altitude of those features in another particular embodiment (col. 6, lines 26-35 and 40-44).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the processing of Jackson et al. in one embodiment with the method of Jackson et al., since Jackson et al. shows that various methods of processing are all equivalent processes known in the art (col. 6, lines 32-33). Therefore, because these processes were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute one process for another. One would be motivated to process the two dimensional image and then the three dimensional image in order to exploit additional information if current information is not enough as implied from Jackson et al. (col. 6, lines 15-31).

8. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. as applied to claim 22 above, and further in view of Roy et al. (US Patent 5402505).

Jackson et al. suggests a method as recited above.

However, Jackson et al. does not disclose calculating coplanarity by planes of repose of least squares.

Roy et al. teaches calculating coplanarity by planes of repose and least squares (col. 1, lines 59-62).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to calculate coplanarity of Roy et al. with the suggested method of Jackson et al., since Roy et al. shows that various methods of calculating are all equivalent processes known in the art (col. 1, lines 59-62). Therefore, because these calculations were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute one process for another. One would be motivated to calculate coplanarity with these calculations to ensure that the package has leads in a common plane as implied from Roy et al. (col. 1, lines 20-21), so when attaching the package to something else, misalignment and poor connections do not occur.

9. Claims 27, 33, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. as applied to claims 17, 30, and 39 above, and further in view of Chen et al. (US Patent 5028799).

Jackson et al. suggests a method as recited above.

However, Jackson et al. does not disclose a pair of opposed lasers to combine the image.

Chen et al. teaches a pair of opposed lasers to combine the image (Fig. 1, #11 and 17).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the opposed lasers of Chen et al. with the suggested method of

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Jackson et al., since one would be motivated to simplify processing and improve overall speed and accuracy with two lasers instead of one as implied from Chen et al. (col. 2, lines 7-15).

10. Claims 29 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. as applied to claims 28 and 34 above, and further in view of Williams (US Patent 4801207).

Jackson et al. suggests a method as recited above.

However, Jackson et al. does not disclose transforming to reduce geometric distortion.

Williams teaches transforming to reduce geometric distortion (col. 14, lines 30-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the transforming of Williams with the suggested method of Jackson et al., since one would be motivated reduce distortion as implied from Williams (col. 14, lines 30-45) for better images.

11. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. in view of Chen et al. as applied to claim 40 above, and further in view of Williams.

Jackson et al. in view of Chen et al. suggests a method as recited above.

However, Jackson et al. does not disclose transforming to reduce geometric distortion.

Williams teaches transforming to reduce geometric distortion (col. 14, lines 30-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the transforming of Williams with the suggested method of Jackson

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et al. in view of Chen et al., since one would be motivated reduce distortion as implied from Williams (col. 14, lines 30-45) for better images.

Response to Arguments

12. The objections to the specification and drawings have been withdrawn in light of the amendment and drawing proposals filed October 1, 2002.

13. Applicant's arguments with respect to claims 17-41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gk

December 28, 2002



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